

MACH 2™ AND MACH 3™ QUICK-START INSTRUCTIONS

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PRODUCTS

A Joystick
Technologies, Inc.
Company

A FEW WORDS ABOUT OUR JOYSTICKS

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Important Note:

Not all pins of the joystick adaptor/connector are needed to make the joystick function properly. The joystick connector may actually have fewer than the number of pins indicated. The phrase "15-pin connector" refers only to the overall size of the connector, not the actual number of pins in the connector.

Precision, Quality, Control

The people who made this joystick are dedicated to designing and producing the best joysticks and other game-oriented peripherals in the world. CH Products' superior design, workmanship and materials result in joysticks with more precise cursor control and greater durability than any other joysticks on the market.

At CH Products, we always have something new on the drawing board. Because as a customer you are important to us, we'd like to keep you informed about our latest designs, and offer you the opportunity to get new CH Products first, and take advantage of terrific offers on other related products.

So please...

Send in your warranty registration card right now, and we'll keep you up to the minute on cutting-edge technology at breakthrough prices.

Features

MACH 2™ and MACH 3™ joysticks provide precise cursor control and two push button switches. The MACH 3 has an additional push button on the stick handle which duplicates the function of one of the on-deck push buttons.

Compatibility

You can use your MACH 2 and MACH 3 with all IBM PC/XT/AT/PS2 and compatible gameports.

Single Joystick – IBM

Connect the 15-pin male connector of the MACH 2 or MACH 3 into a CH Products GAMECARD 3 AUTOMATIC or other IBM compatible game adapter.

Two Joysticks – IBM

Connect the 15-pin male of the MACH 2 or MACH 3 into either female port of a CH Products GAMECARD. Attach the second joystick to the remaining connector. Attach the joystick you use most often to connector "A."

If you use a computer other than a standard IBM PC...

Some IBM compatibles have problems generating the proper joystick values with many software programs. You may find:

- you can't go completely to the right or bottom of the screen,

- the cursor jumps to the left side of the screen even though the joystick is pushed to the right, or
- there is no cursor motion at all.

The GAMECARD 3 AUTOMATIC clears up the problem for a variety of PC compatible computers, by generating proper joystick values automatically.

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**GAMECARD 3
AUTOMATIC may
be purchased at
your local retailer.
Or call
1-619-598-2518 to
order directly from
CH Products.**

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Note:

Each push button will have a different purpose, depending on the software program you are using. Consult the software manual for specifics.

Axis Trims and Centering Indicators

Rotary Trim Controls to the left and above the stick handle (see Figure 1 and 2) line up the electrical components with the mechanical center of the stick. Since each computer is different, you may need to make this adjustment before starting play the first time. Centering Indicators show the relative position of the rotary trim adjustments on the screen. (To center properly, see the section titled **Centering Your Joystick**.)

Push Buttons

The MACH 2 and MACH 3 each contain two independent momentary contact push buttons on the joystick deck. The MACH 3 has an additional button on top of the stick handle which duplicates the function of one of the on-deck buttons. This usually functions as the fire button for most games.

Mode Slide Switches

The MACH 2 and MACH 3 each contain dual-mode slide switches: one to the right of and one below the stick. Use these switches to choose spring self-centering or free-floating modes for each axis: vertical and horizontal.

To change modes, slide the mode switch as indicated in Figure 1. The switches are independent. You can place each axis in a different mode without damage to the joystick.

Note: For proper operation, always move the mode slide switch completely to the end of travel in either direction.

Centering Your Joystick

With the mode switch in "Self-Centering Mode," the MACH 2 or MACH 3 handle will return to

Figure 1: MACH 2

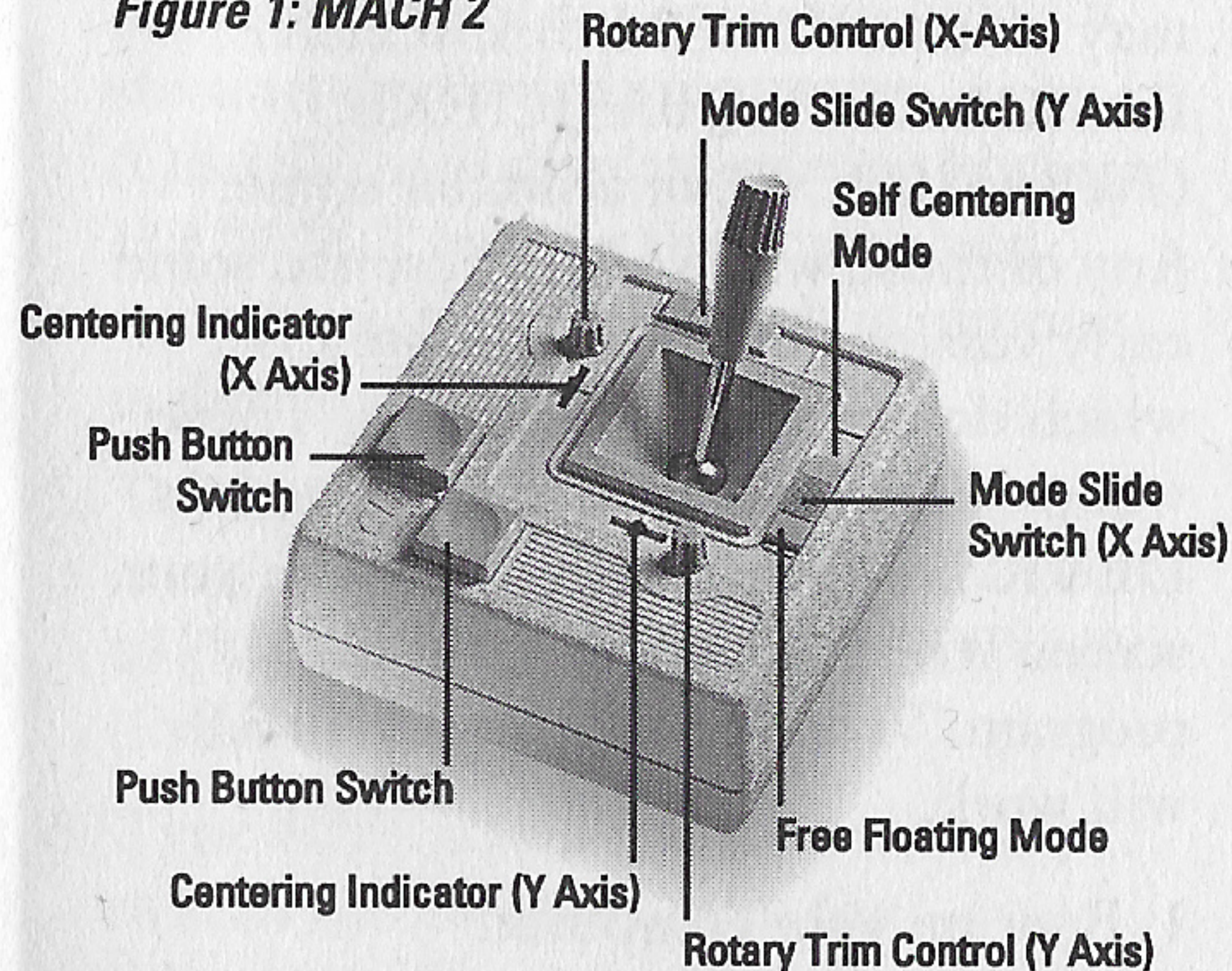
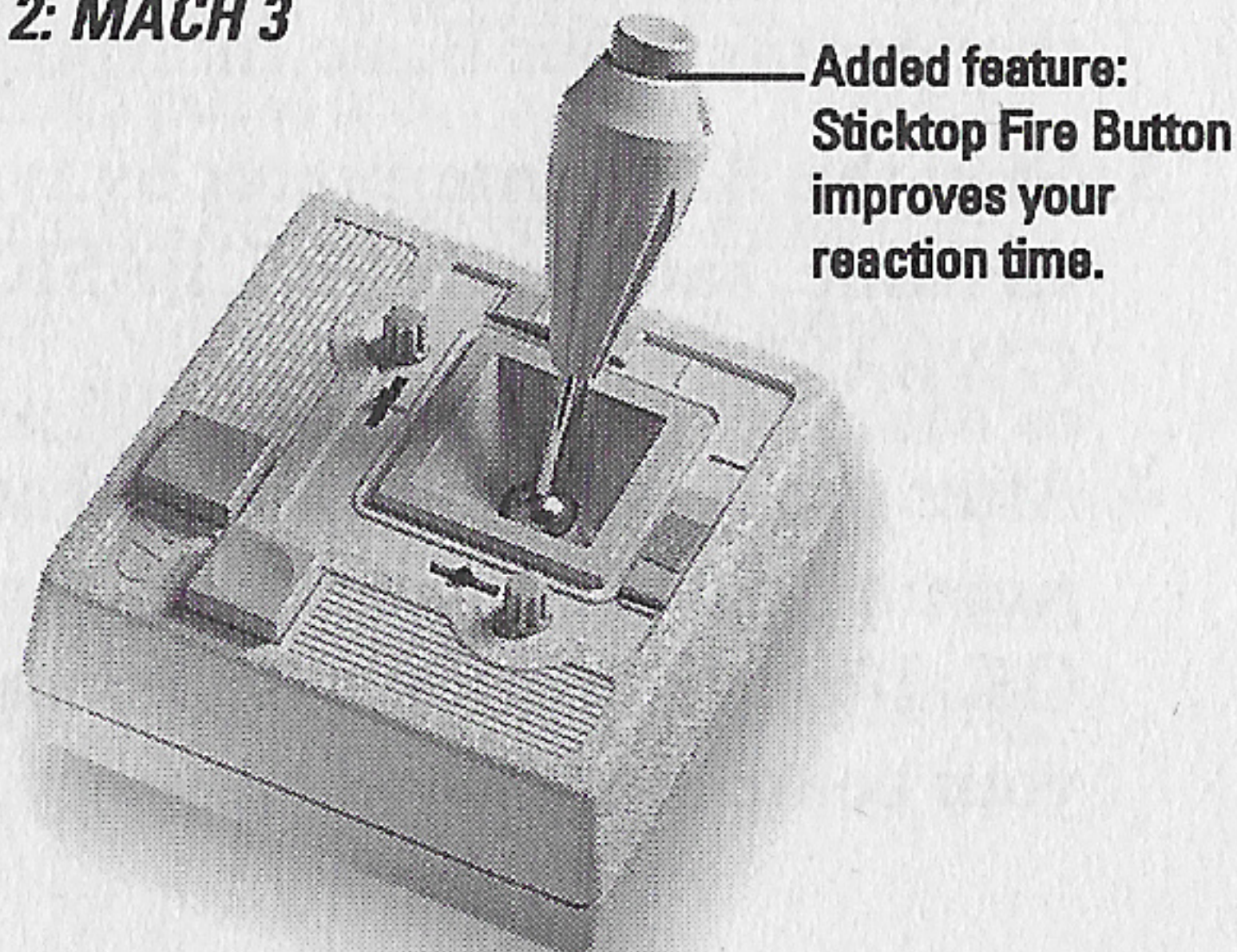


Figure 2: MACH 3



mechanical center automatically when you release the stick handle. Because computers, programs and screens vary, you may need to use the trim adjustment controls to line up the stick's mechanical center with its electrical center. Here's how:

To adjust drift: Different software programs have different centering requirements. If the cursor drifts without engaging the stick handle, readjust the trim controls in the opposite direction until the cursor stops drifting. For example, if the cursor drifts up and to the left, turn the X and Y rotary trims clockwise – to the right and down – to counteract the drift.

To center cursor: Use the rotary trim indicators to center the cursor on the screen. Because each computer is different, the rotary indicators may not appear to be exactly in the center of your screen, even when the joystick is

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Note:

Some software programs provide for joystick centering within the program. To assure that stick motion offers a linear response, please make the centering adjustment according to the following instructions before running your program. Then use the program's centering and calibration adjustments to fine tune to your program.

GIVING YOUR JOYSTICK A GENERAL CHECKOUT

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Note:

Versions of Basic not compatible with your computer and several public domain joystick test programs produce inaccurate results. This does not mean there is a problem with your MACH 2 or MACH 3. If you have a problem with the following procedures, try the MACH 2 or MACH 3 with other programs with which you know you have been able to use IBM compatible joysticks.

electrically centered for your computer. This is normal and does not affect the performance of the joystick.

Giving Your Joystick a General Checkout

If you are technically oriented, you may wish to run a simple program test on your MACH 2 or MACH 3 to display the X and Y values.

Place the MACH 2 or MACH 3 in front of you with the cable facing away from you, and run the following checks.

IBM Test Program Startup

The following centering procedure requires the use of a short Basic program. Before you can enter the program, you must load the Basic Interpreter into your computer. You will most likely find a Basic Interpreter program on the DOS system disk which came with your computer. The name

may be BASIC.COM, BASIC.EXE, BASICA.COM, QBASIC.EXE, GWBASIC.EXE, or a similar name. Any of these will work. There are some early versions of these interpreters which do not support joysticks. These will produce an error message, such as DEVICE NOT AVAILABLE, on your screen when you try to run the program. Version numbers above 3.0 will work.

1. Boot up your computer.
2. Change to the disk drive and directory that contain your Basic Interpreter.
3. Start the Basic Interpreter by typing its name, such as BASIC, BASICA, GWBASIC or QBASIC.
4. After the interpreter is loaded and running you should see the prompt OK. If this is not the case, consult your computer Basic Language

manuals for the correct procedure for starting the Basic Interpreter. (QBASIC will display a dialog box. Hit "ESC" to clear the screen and you are ready even though no prompt is showing.)

5. Type in the following Basic program in one line, then press the "Enter" key:
10 PRINT STICK(0),STICK(1): GOTO 10
(Press Enter)
6. Type RUN and press the enter key to start the program. Run the following "Centering Test" while the program is working. (For QBASIC press F5.)
7. When finished, press and hold the control "CTRL" key, then press "Break." Type "System" to return to DOS. (For QBASIC select "File" with your mouse or press "ALT" and the "F". Select "X" for exit. Saving is not necessary.)

Centering Test:

1. Set the X and Y axis mode slide switches to the self-centering mode.
2. Rotate the X-axis trim clockwise until the X-axis centering indicator is nearly all the way to the left. Then move the stick all the way to the right.
3. Write down the "X value" in the first column on the screen; this is the maximum X value.
4. Release the stick to its center position and adjust the X and Y trims until the first and second columns on the screen read about half the maximum X value. For example, if maximum X was 200, adjust the trim until the first two columns read 100. Both axis centering indicators should be near the center.

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IBM Connector Pinout:

DB15 Pin No.	Signal Name
1	+5VDC
2	Button 1
3	X-AXIS
4	GROUND
6	Y-AXIS
7	BUTTON 2
12	SHIELD
13 ..	No Connection

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To obtain warranty services, send the JOYSTICK, postage prepaid, with a check for \$4.00 to cover shipping and handling, together with a dated proof of purchase to:
CH Products
Customer Service
970 Park Center Dr.
Vista, CA 92083

Trouble Shooting

If any of the above tests do not give the results described, recheck the following items:

1. Check the connection between your MACH 2 or MACH 3 and your joystick adapter. Make sure the connection is secure.
2. List the Basic program to assure that it has been typed exactly as stated.
3. Try the MACH 2 or MACH 3 with other programs with which you know you have been able to use joysticks. Successful operation of the MACH 2 or MACH 3 with any program indicates that the MACH 2 and/or other game adapter hardware are connected and working properly.

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CH Products One Year Limited Warranty

This JOYSTICK is warranted to the original purchaser to be free from defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, CH Products will, at its option, repair or replace, at no charge, any component which is determined to be defective.

The liability under this warranty is limited to the repair of and/or replacement of the defect or defective part at our factory and does not include shipping expenses.

The warranty does not apply if, in the opinion of CH Products, the JOYSTICK has been damaged by accident, abuse, improper usage, or as a result of service or modification by other than CH Products.

“NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF SALEABILITY AND FITNESS FOR A PARTICULAR PURPOSE. CH PRODUCTS IS NOT RESPONSIBLE FOR CONSEQUENTIAL DAMAGES.” SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.